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GRAPHICAL COMPUTING TABLE

BY W.H.BIXBY, CORPS OF ENGINEERS, U.S. ARMY, 1879.
AFTER THE METHOD OF LÉON LALANNE, CORPS OF PONTS & CHAUSSÉES, FRANCE.

WEIGHT OF IRON CYLINDERS IN TONS

$$\pi D \cdot H \cdot \frac{T}{12} \cdot \frac{484}{2240} = \frac{1}{1.78} \text{ D.H.T.}$$

D = MEAN DIAM. IN FT.
H = HEIGHT IN FT.
T = THICKNESS IN INCHES

WEIGHT OF IRON PLATES IN TONS

$$\text{H.B.T.} \cdot \frac{484}{2240} = \frac{1}{556} \text{ H.B.T.}$$

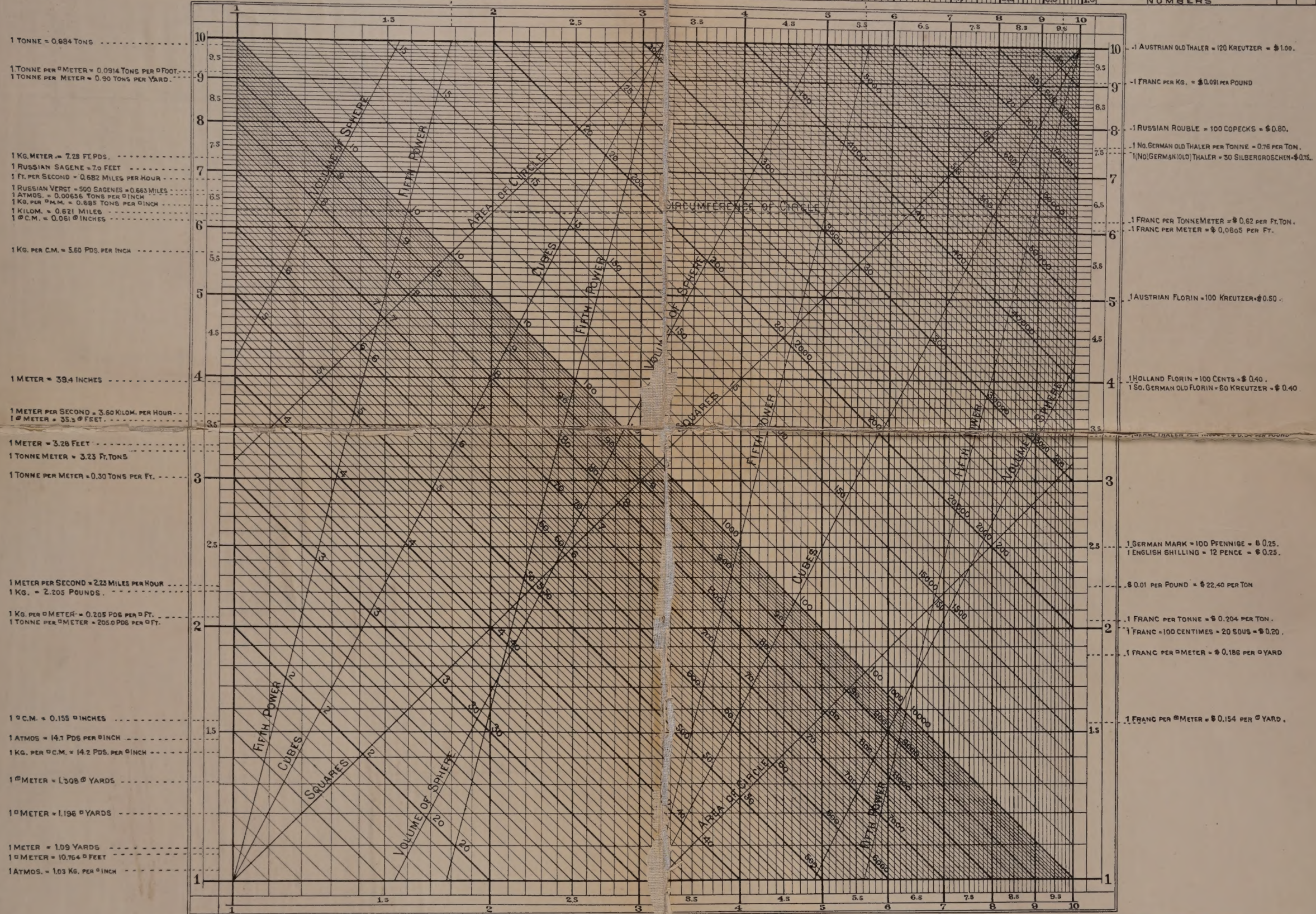
H = HEIGHT IN FEET
B = BREADTH IN FEET
T = THICKNESS IN INCHES

HORSE POWER

$$\frac{P.A.S.2R}{33000} = \frac{P.r^2.S.R}{0.0000952}$$

P = PRESSURE IN P.S.I.
 A = AREA OF PISTON HEAD } IN SQUARE INCHES
 r = RADIUS OF PISTON HEAD IN INCHES
 S = LENGTH OF STROKE IN FEET
 R = NUMBER OF REVOLUTIONS PER MINUTE

SINES AND COSINES	1°	SINES															COSINES															SINES															COSINES															SINES AND COSINES																																											
	2°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																																																										
	3°	NUMBERS															NUMBERS															NUMBERS															NUMBERS																																																										
	4°	SINES															COSINES															SINES															COSINES																																																										
	5°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																																																										
6°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS																																												
7°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
8°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																																												
9°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS																													
10°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
11°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
12°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
13°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
14°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
15°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
16°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
17°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
18°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
19°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
20°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
21°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
22°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
23°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
24°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
25°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
26°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
27°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
28°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
29°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
30°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
31°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
32°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
33°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
34°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
35°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
36°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
37°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
38°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
39°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
40°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
41°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
42°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
43°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
44°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
45°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
46°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
47°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
48°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
49°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
50°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
51°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
52°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
53°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
54°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
55°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
56°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
57°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														
58°	SINES															COSINES															SINES															COSINES															SINES															COSINES																													
59°	SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS															SUBDIVISION OF ARCS																													
60°	NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS															NUMBERS														



TANGENTS AND COTANGENTS	NUMBERS										NUMBERS										NUMBERS										TANGENTS AND COTANGENTS																																								
	SUBDIVISION OF ARCS										SUBDIVISION OF ARCS										SUBDIVISION OF ARCS																																																		
	TANGENTS										TANGENTS										TANGENTS																																																		
	COTANGENTS										COTANGENTS										COTANGENTS																																																		
> 0.01	F 179°										3° 177										4° 176°										5° 175°										> 1.0																														
< 0.01	89° 31'										87° 33'										86° 24'										85° 93'										< 0.01																														
> 1.0	6° 174'										7° 173°										8° 172°										9° 171°										10° 170°										> 0.1																				
< 1.0	84° 96'										83° 97'										82° 98'										81° 99'										80° 100°										< 1.0																				
> 0.01	162 20°										160°										25° 155'										30° 150°										35° 145°										40° 140°										45° 135°										> 0.01
< 0.01	108° 70°										110°										65° 113'										60° 120°										55° 125°										50° 130°										45° 133°										< 0.01
	1										1										1										1										1										1																				
> 0.01	45° 135°										50° 130°										55° 125°										60° 120°										65° 113°										70° 110°										> 0.01										
< 0.01	43° 135°										40° 140°										35° 145°										30° 150°										25° 155°										20° 160°										< 0.01										
	78° 105										80° 100										85° 98°										90° 96°										95° 94°																														
	13° 165°										10° 170°										8° 172°										6° 174°										4° 176°																														

This Table is composed of **horizontal, vertical** and two sets of **diagonal** lines .
 For ordinary operations of **multiplication**, the **horizontals** are **multipliers**, the **verticals** are **multiplicands**, and the **diagonals** running downward to the right are the **products** .
 In like manner in ordinary operations of **division**, the **horizontals** are **divisors**, the **verticals** are **dividends**, and the **diagonals** running upward to the right are the **quotients** .
 In **evolution** and **involution**, the **verticals** are the **roots**, and the **diagonals** running upward to the right are the **powers** .
 The position of the decimal point is to be determined as in the use of logarithms or of the **rule** .

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This Table is composed of horizontal, vertical and two sets of diagonal lines.
For ordinary operations of multiplication, the horizontals are multipliers, the verticals are
in like manner in ordinary operations of division, the horizontals are divisors, the verticals
in evolution and involution, the verticals are the roots, and the diagonals running upward
The position of the decimal point is to be determined as in the use of logarithms or of the

TANGENTS AND COTANGENTS		NUMBERS		TANGENTS		COTANGENTS	
> 1.0	< 10.0	SUBDIVISION OF ARCS	NUMBERS	SUBDIVISION OF ARCS	TANGENTS	COTANGENTS	NUMBERS
45° 13'	50° 13'	45° 13'	1	45° 13'	1	45° 13'	1
45° 14'	50° 14'	45° 14'	2	45° 14'	2	45° 14'	2
45° 15'	50° 15'	45° 15'	3	45° 15'	3	45° 15'	3
45° 16'	50° 16'	45° 16'	4	45° 16'	4	45° 16'	4
45° 17'	50° 17'	45° 17'	5	45° 17'	5	45° 17'	5
45° 18'	50° 18'	45° 18'	6	45° 18'	6	45° 18'	6
45° 19'	50° 19'	45° 19'	7	45° 19'	7	45° 19'	7
45° 20'	50° 20'	45° 20'	8	45° 20'	8	45° 20'	8
45° 21'	50° 21'	45° 21'	9	45° 21'	9	45° 21'	9
45° 22'	50° 22'	45° 22'	10	45° 22'	10	45° 22'	10
45° 23'	50° 23'	45° 23'	11	45° 23'	11	45° 23'	11
45° 24'	50° 24'	45° 24'	12	45° 24'	12	45° 24'	12
45° 25'	50° 25'	45° 25'	13	45° 25'	13	45° 25'	13
45° 26'	50° 26'	45° 26'	14	45° 26'	14	45° 26'	14
45° 27'	50° 27'	45° 27'	15	45° 27'	15	45° 27'	15
45° 28'	50° 28'	45° 28'	16	45° 28'	16	45° 28'	16
45° 29'	50° 29'	45° 29'	17	45° 29'	17	45° 29'	17
45° 30'	50° 30'	45° 30'	18	45° 30'	18	45° 30'	18
45° 31'	50° 31'	45° 31'	19	45° 31'	19	45° 31'	19
45° 32'	50° 32'	45° 32'	20	45° 32'	20	45° 32'	20
45° 33'	50° 33'	45° 33'	21	45° 33'	21	45° 33'	21
45° 34'	50° 34'	45° 34'	22	45° 34'	22	45° 34'	22
45° 35'	50° 35'	45° 35'	23	45° 35'	23	45° 35'	23
45° 36'	50° 36'	45° 36'	24	45° 36'	24	45° 36'	24
45° 37'	50° 37'	45° 37'	25	45° 37'	25	45° 37'	25
45° 38'	50° 38'	45° 38'	26	45° 38'	26	45° 38'	26
45° 39'	50° 39'	45° 39'	27	45° 39'	27	45° 39'	27
45° 40'	50° 40'	45° 40'	28	45° 40'	28	45° 40'	28
45° 41'	50° 41'	45° 41'	29	45° 41'	29	45° 41'	29
45° 42'	50° 42'	45° 42'	30	45° 42'	30	45° 42'	30
45° 43'	50° 43'	45° 43'	31	45° 43'	31	45° 43'	31
45° 44'	50° 44'	45° 44'	32	45° 44'	32	45° 44'	32
45° 45'	50° 45'	45° 45'	33	45° 45'	33	45° 45'	33
45° 46'	50° 46'	45° 46'	34	45° 46'	34	45° 46'	34
45° 47'	50° 47'	45° 47'	35	45° 47'	35	45° 47'	35
45° 48'	50° 48'	45° 48'	36	45° 48'	36	45° 48'	36
45° 49'	50° 49'	45° 49'	37	45° 49'	37	45° 49'	37
45° 50'	50° 50'	45° 50'	38	45° 50'	38	45° 50'	38
45° 51'	50° 51'	45° 51'	39	45° 51'	39	45° 51'	39
45° 52'	50° 52'	45° 52'	40	45° 52'	40	45° 52'	40
45° 53'	50° 53'	45° 53'	41	45° 53'	41	45° 53'	41
45° 54'	50° 54'	45° 54'	42	45° 54'	42	45° 54'	42
45° 55'	50° 55'	45° 55'	43	45° 55'	43	45° 55'	43
45° 56'	50° 56'	45° 56'	44	45° 56'	44	45° 56'	44
45° 57'	50° 57'	45° 57'	45	45° 57'	45	45° 57'	45
45° 58'	50° 58'	45° 58'	46	45° 58'	46	45° 58'	46
45° 59'	50° 59'	45° 59'	47	45° 59'	47	45° 59'	47
45° 60'	50° 60'	45° 60'	48	45° 60'	48	45° 60'	48
45° 61'	50° 61'	45° 61'	49	45° 61'	49	45° 61'	49
45° 62'	50° 62'	45° 62'	50	45° 62'	50	45° 62'	50
45° 63'	50° 63'	45° 63'	51	45° 63'	51	45° 63'	51
45° 64'	50° 64'	45° 64'	52	45° 64'	52	45° 64'	52
45° 65'	50° 65'	45° 65'	53	45° 65'	53	45° 65'	53
45° 66'	50° 66'	45° 66'	54	45° 66'	54	45° 66'	54
45° 67'	50° 67'	45° 67'	55	45° 67'	55	45° 67'	55
45° 68'	50° 68'	45° 68'	56	45° 68'	56	45° 68'	56
45° 69'	50° 69'	45° 69'	57	45° 69'	57	45° 69'	57
45° 70'	50° 70'	45° 70'	58	45° 70'	58	45° 70'	58
45° 71'	50° 71'	45° 71'	59	45° 71'	59	45° 71'	59
45° 72'	50° 72'	45° 72'	60	45° 72'	60	45° 72'	60
45° 73'	50° 73'	45° 73'	61	45° 73'	61	45° 73'	61
45° 74'	50° 74'	45° 74'	62	45° 74'	62	45° 74'	62
45° 75'	50° 75'	45° 75'	63	45° 75'	63	45° 75'	63
45° 76'	50° 76'	45° 76'	64	45° 76'	64	45° 76'	64
45° 77'	50° 77'	45° 77'	65	45° 77'	65	45° 77'	65
45° 78'	50° 78'	45° 78'	66	45° 78'	66	45° 78'	66
45° 79'	50° 79'	45° 79'	67	45° 79'	67	45° 79'	67
45° 80'	50° 80'	45° 80'	68	45° 80'	68	45° 80'	68
45° 81'	50° 81'	45° 81'	69	45° 81'	69	45° 81'	69
45° 82'	50° 82'	45° 82'	70	45° 82'	70	45° 82'	70
45° 83'	50° 83'	45° 83'	71	45° 83'	71	45° 83'	71
45° 84'	50° 84'	45° 84'	72	45° 84'	72	45° 84'	72
45° 85'	50° 85'	45° 85'	73	45° 85'	73	45° 85'	73
45° 86'	50° 86'	45° 86'	74	45° 86'	74	45° 86'	74
45° 87'	50° 87'	45° 87'	75	45° 87'	75	45° 87'	75
45° 88'	50° 88'	45° 88'	76	45° 88'	76	45° 88'	76
45° 89'	50° 89'	45° 89'	77	45° 89'	77	45° 89'	77
45° 90'	50° 90'	45° 90'	78	45° 90'	78	45° 90'	78
45° 91'	50° 91'	45° 91'	79	45° 91'	79	45° 91'	79
45° 92'	50° 92'	45° 92'	80	45° 92'	80	45° 92'	80
45° 93'	50° 93'	45° 93'	81	45° 93'	81	45° 93'	81
45° 94'	50° 94'	45° 94'	82	45° 94'	82	45° 94'	82
45° 95'	50° 95'	45° 95'	83	45° 95'	83	45° 95'	83
45° 96'	50° 96'	45° 96'	84	45° 96'	84	45° 96'	84
45° 97'	50° 97'	45° 97'	85	45° 97'	85	45° 97'	85
45° 98'	50° 98'	45° 98'	86	45° 98'	86	45° 98'	86
45° 99'	50° 99'	45° 99'	87	45° 99'	87	45° 99'	87
45° 100'	50° 100'	45° 100'	88	45° 100'	88	45° 100'	88
45° 101'	50° 101'	45° 101'	89	45° 101'	89	45° 101'	89
45° 102'	50° 102'	45° 102'	90	45° 102'	90	45° 102'	90
45° 103'	50° 103'	45° 103'	91	45° 103'	91	45° 103'	91
45° 104'	50° 104'	45° 104'	92	45° 104'	92	45° 104'	92
45° 105'	50° 105'	45° 105'	93	45° 105'	93	45° 105'	93
45° 106'	50° 106'	45° 106'	94	45° 106'	94	45° 106'	94
45° 107'	50° 107'	45° 107'	95	45° 107'	95	45° 107'	95
45° 108'	50° 108'	45° 108'	96	45° 108'	96	45° 108'	96
45° 109'	50° 109'	45° 109'	97	45° 109'	97	45° 109'	97
45° 110'	50° 110'	45° 110'	98	45° 110'	98	45° 110'	98
45° 111'	50° 111'	45° 111'	99	45° 111'	99	45° 111'	99
45° 112'	50° 112'	45° 112'	100	45° 112'	100	45° 112'	100
45° 113'	50° 113'	45° 113'	101	45° 113'	101	45° 113'	101
45° 114'	50° 114'	45° 114'	102	45° 114'	102	45° 114'	102
45° 115'	50° 115'	45° 115'	103	45° 115'	103	45° 115'	103
45° 116'	50° 116'	45° 116'	104	45° 116'	104	45° 116'	104
45° 117'	50° 117'	45° 117'	105	45° 117'	105	45° 117'	105
45° 118'	50° 118'	45° 118'	106	45° 118'	106	45° 118'	106
45° 119'	50° 119'	45° 119'	107	45° 119'	107	45° 119'	107
45° 120'	50° 120'	45° 120'	108	45° 120'	108	45° 120'	108
45° 121'	50° 121'	45° 121'	109	45° 121'	109	45° 121'	109
45° 122'	50° 122'	45° 122'	110	45° 122'	110	45° 122'	110
45° 123'	50° 123'	45° 123'	111	45° 123'	111	45° 123'	111
45° 124'	50° 124'	45° 124'	112	45° 124'	112	45° 124'	112
45° 125'	50° 125'	45° 125'	113	45° 125'	113	45° 125'	113
45° 126'	50° 126'	45° 126'	114	45° 126'	114	45° 126'	114
45° 127'	50° 127'	45° 127'	115	45° 127'	115	45° 127'	115
45° 128'	50° 128'	45° 128'	116	45° 128'	116	45° 128'	116
45° 129'	50° 129'	45° 129'	117	45° 129'	117	45° 129'	117
45° 130'	50° 130'	45° 130'	118	45° 130'	118	45° 130'	118
45° 131'	50° 131'	45° 131'	119	45° 131'	119	45° 131'	119
45° 132'	50° 132'	45° 132'	120	45° 132'	120	45° 132'	120
45° 133'	50° 133'	45° 133'	121	45° 133'	121	45° 133'	121
45° 134'	50° 134'	45° 134'	122	45° 134'	122	45° 134'	122
45° 135'	50° 135'	45° 135'	123	45° 135'	123	45° 135'	123
45° 136'	50° 136'	45° 136'	124	45° 136'	124	45° 136'	124
45° 137'	50° 137'	45° 137'	125	45° 137'	125	45° 137'	125
45° 138'	50° 138'	45° 138'	126	45° 138'	126	45° 138'	126
45° 139'	50° 139'	45° 139'	127	45° 139'	127	45° 139'	127
45° 140'	50° 140'	45° 140'	128	45° 140'	128	45° 140'	128
45° 141'	50° 141'	45° 141'	129	45° 141'	129	45° 141'	129
45° 142'	50° 142'	45° 142'	130	45° 142'	130	45° 142'	130
45° 143'	50° 143'	45° 143'	131	45° 143'	131	45° 143'	131
45° 144'	50° 144'	45° 144'	132	45° 144'	132	45° 144'	132
45° 145'	50° 145'	45° 145'	133	45° 145'	133	45° 145'	133
45° 146'	50° 146'	45° 146'	134	45° 146'	134	45° 146'	134
45° 147'	50° 147'	45° 147'	135	45° 147'	135	45° 147'	135
45° 148'	50° 148'	45° 148'	136	45° 148'	136	45° 148'	136
45° 149'	50° 149'	45° 149'	137	45° 149'	137	45° 149'	137
45° 150'	50° 150'	45° 150'	138	45° 150'	138	45° 150'	138
45° 151'	50° 151'	45° 151'	139	45° 151'	139	45° 151'	139
45° 152'	50° 152'	45° 152'	140	45° 152'	140	45° 152'	140
45° 153'	50° 153'	45° 153'	141	45° 153'	141	45° 153'	141
45° 154'	50° 154'	45° 154'	142	45° 154'	142	45° 154'	142
45° 155'	50° 155'	45° 155'	143	45° 155'	143	45° 155'	143
45° 156'	50° 156'	45° 156'	144	45° 156'	144	45° 156'	144
45° 157'	50° 157'	45° 157'	145	45° 157'	145	45° 1	

